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Benjamin T. Queen, II
Pietragallo, Bosick & Gordon
One Oxford Centre
301 Grant Street, 38th Floor
Pittsburgh, PA 15219

EXAMINER

HWANG, JOON H

ART UNIT PAPER NUMBER

2166

DATE MAILED: 12/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/607,871

Applicant(s)

MCVOY ET AL.

Examiner

Joon H. Hwang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 19-47 is/are pending in the application.
- 4a) Of the above claim(s) 18 is/are ~~withdrawn from consideration~~ *Cancelled*.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 19-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The applicants amended claims 1-4, 9, 12, 19, 25, 28-30, and 33-35, canceled claim 18, and added new claims 36-47 in the amendment received on 9/1/06.

The pending claims are 1-7 and 9-47.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 22, 25, 28, and 33 have been considered but are moot in view of the new ground(s) of rejection.

The applicants added in claims 1, 25, and 33 the limitations of the version control system allowing a user to check the associative array in and out of the system and to edit the associative array when it is checked out of the version control system and in claim 28 the limitations of the first user computer and the second user computer cannot communicate for with each other for periods of time. These limitations are addressed in the following rejection.

A. The applicants argue that *Arun* completely fails to disclose or suggest a system that performs version control on an associative array having a plurality of key/value pairs.

The examiner respectfully traverses.

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically

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pointing out how the language of the claims patentably distinguishes them from the references.

Arun teaches an associative array having a plurality of key/value pairs (i.e., a record having a plurality of field/value pairs, such as row 20(1) in fig. 2). Arun teaches performing a version control on the associative array (i.e., version management fields on the record in fig. 2).

Therefore, the applicants' arguments are not persuasive.

Claim Objections

3. Claims 1, 25, and 29 are objected to because of the following informalities:

- "it" in 11th line of claim 1 is unclear and should be specified;
- "the associate array" in 12th line of claim 25 should be "the associative array"; and
- "the first associate array" in 2nd line of claim 29 should be "the first associative array".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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5. Claims 3, 37-39, and 41-44 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The limitation "applying version control operation comprises creating an associative array file within the version control system in accordance with the single file, where the associative array file is explicitly identified as an associative array within the version control system" of claim 3 is not supported by the specification.

The limitation "a delta operation that detects and **indicates** to a user **when** a new key/value pair has been added to the associative array" of claim 37 is not supported by the specification.

The limitation "a delta operation that detects and **indicates** to a user **when** a key/value pair has been removed from the associative array" of claim 38 is not supported by the specification.

The limitation "a delta operation that detects and **indicates** to a user **when** a value of a key/value pair has been modified in the associative array" of claim 39 is not supported by the specification.

The limitation "a commit operation that detects and creates a changeset within the version control system **indicating when** a new key/value pair has been added to the associative array" of claim 41 is not supported by the specification.

The limitation "a commit operation that detects and creates a changeset within the version control system **indicating when** a key/value pair has been removed from the associative array" of claim 42 is not supported by the specification.

The limitation "a commit operation that detects and creates a changeset within the version control system **indicating when** a key/value pair has been modified in the associative array" of claim 43 is not supported by the specification.

The limitation "a delta operation that detects and creates a changeset within the version control system **indicating when** a key/value pair has been modified in the associative array" of claim 44 is not supported by the specification.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-2, 4-9, 11, 15-16, 19-23, 25-26, 33-34, 36, 40, and 45 are rejected under 35 U.S.C. 102(e) as being anticipated by Arun et al. (U.S. Patent No. 6,631,386).

With respect to claim 1, Arun teaches storing an associative array comprising a plurality of key/value pairs (i.e., storing a record having a plurality of field/value pairs,

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such as row 20(1) in fig. 2, fig. 4). Arun teaches providing a version control system on the computer (fig. 1). Arun teaches applying a version control operation within the version control system to the associative array to provide version control to at least one of the plurality of key/value pairs of the associative array (i.e., a record-by-record basis version control, lines 1-25 in col. 5, lines 48-67 in col. 25, lines 32-58 in col. 1, lines 49-67 in col. 4, and fig. 2), the version control system allowing a user to check the associative array in and out of the system and to edit the associative array when it is checked out of the version control system (i.e., the improved version control system with check-in/check-out functions, lines 13-31 in col. 26 and lines 20-54 in col. 2).

With respect to claim 2, Arun teaches the version control operation includes at least one of delete, rollback, and annotate (i.e., delete, fig. 4).

With respect to claim 4, Arun teaches viewing the associative array as a database record (fig. 2 and lines 49-67 in col. 4).

With respect to claim 5, Arun teaches organizing a collection of associative arrays as a database table (fig. 2 and lines 49-67 in col. 4).

With respect to claim 6, Arun teaches a specification file which defines at least one of table characteristics default value or constraints on allowable values (i.e., a default value in a field of a table, lines 16-27 in col. 6).

With respect to claim 7, Arun teaches organizing a collection of database tables as a database (fig. 1, fig. 2, and lines 49-67 in col. 4).

With respect to claim 8, Arun teaches applying a version control operation to the collection of associative arrays (i.e., a table-by-table basis version control, lines 48-67 in col. 25 and lines 24-53 in col. 13).

With respect to claim 9, Arun teaches the version control operation includes at least one of add, remove, and modify operations that treat the collection of associative array differently from a collection of regular files (i.e., tables in form of files, lines 27-34 in col. 3 and lines 13-31 in col. 26, and selectively versioning a table, lines 3-7 in col. 22, fig. 4).

With respect to claim 11, Arun teaches structuring and arranging for peer to peer communication (lines 52-67 in col. 26 and lines 20-54 in col. 2).

With respect to claim 15, Arun teaches manually resolving a selected conflict occurring in the keys by evaluating historical values of the keys containing the conflict (fig. 6).

With respect to claim 16, Arun teaches version controlling a database containing the associative array (lines 48-67 in col. 25 and lines 24-53 in col. 13).

With respect to claim 19, Arun teaches replicating a plurality of associative arrays that have been created within the version control system (i.e., synchronization of records, fig. 2, line 59 in col. 17 thru line 27 in col. 18). Arun teaches checking out and editing at least one of the plurality of associative arrays (fig. 4, lines 13-31 in col. 26, and lines 20-54 in col. 2). Arun teaches committing the edited and unedited plurality of associative arrays back to the version control system in such a way that changes to the

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key/value pairs are correctly handled (i.e., rolling back to a previous version, fig. 5 and line 54 in col. 13 thru line 9 in col. 14).

With respect to claim 20, Arun teaches version controlling the plurality of associative arrays in original form prior to the editing of at least one of the plurality of associative arrays (fig. 5).

With respect to claim 21, Arun teaches version controlling the edited and unedited plurality of associative arrays following the committing of the edited and unedited plurality of associative arrays back to the version control system (fig. 5).

The limitations of claims 22, 25, and 33 are rejected in the analysis of claim 1 above. For claim 25, Arun further teaches identifying within the version control system that the associate array is an associative array (i.e., a record-by-record basis version control, lines 1-25 in col. 5, lines 48-67 in col. 25, lines 32-58 in col. 1, lines 49-67 in col. 4, and fig. 2). Therefore, these claims are rejected on that basis.

The limitations of claims 23, 26, and 34 are rejected in the analysis of claim 5 above, and these claims are rejected on that basis.

With respect to claim 36, Arun teaches the version control operation is a delta operation that detects changes between two versions of the associative array and wherein the version control system does not consider changing an order of the key/value pairs to be a change to the associative array by the version control system (i.e., detecting changes to data, not to schema, lines 52-57 in col. 18).

With respect to claim 40, Arun teaches the version control operation is a commit operation that detects changes between two versions of the associative array and

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creates a changeset within the version control system and wherein the version control system does not consider changing an order of the key/value pairs to be a change to the associative array by the version control system (i.e., detecting changes to data, not to schema, lines 52-57 in col. 18, and creating a list of conflicted records, lines 28-57 in col. 18).

With respect to claim 45, Arun teaches the version control operation is a query operation that returns the value of a key/value pair having a specified key (i.e., retrieval, fig. 4).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3, 10, 12-14, 17, 24, 27-32, 35, 37-39, 41-44, and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arun et al. (U.S. Patent No. 6,631,386) in view of Boothby (U.S. Patent No. 5,684,990).

With respect to claim 3, Arun discloses the claimed subject matter as discussed above. Arun further teaches applying a version control operation comprises creating an associative array within the version control system in accordance with a structured associative array, where the associative array is explicitly identified within the version control system (i.e., creating an updated version of a record from an original version of

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the record, fig 4A). Arun does not explicitly disclose structuring the associative array as a single file. However, Boothby teaches structuring the associative array as a single file (i.e., a file record, abstract and lines 46-57 in col. 5) in order to organize record data. Therefore, based on Arun in view of Boothby, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Boothby to the system of Arun in order to organize record data.

With respect to claim 10, Arun discloses the claimed subject matter as discussed above except replicating at least a portion of the version control system. However, Boothby teaches replicating at least a portion of the version control system (i.e., synchronization of two different database versions from two different systems, fig. 3) in order to maintain two systems synchronized. Therefore, based on Arun in view of Boothby, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Boothby to the system of Arun in order to maintain two systems synchronized.

With respect to claim 12, Arun discloses the claimed subject matter as discussed above except generating a report combining the associative array with other data and/or meta data contained within the version control system. However, Boothby teaches generating a report combining the associative array with other data and/or meta data contained within the version control system (i.e., generating a status file, fig. 2 and lines 32-45 in col. 5) in order to synchronize data in two systems. Therefore, based on Arun in view of Boothby, it would have been obvious to one having ordinary skill in the art at

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the time the invention was made to utilize the teaching of Boothby to the system of Arun in order to synchronize data in two systems.

With respect to claim 13, Arun discloses the claimed subject matter as discussed above except automatically resolving a selected conflict occurring in the values of the associative array. However, Boothby teaches automatically resolving a selected conflict occurring in the values of the associative array (i.e., resolving a conflict by automatic rules, table 1 in cols. 7-8) in order to synchronize data in two systems. Therefore, based on Arun in view of Boothby, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Boothby to the system of Arun in order to synchronize data in two systems.

With respect to claim 14, Arun discloses the claimed subject matter as discussed above except automatically resolving a selected conflict, using a merge algorithm having knowledge of the data, occurring in the values of the associative array. However, Boothby teaches automatically resolving a selected conflict, using a merge algorithm having knowledge of the data, occurring in the values of the associative array (i.e., resolving a conflict by automatic rules, table 1 in cols. 7-8) in order to synchronize data in two systems. Therefore, based on Arun in view of Boothby, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Boothby to the system of Arun in order to synchronize data in two systems.

With respect to claim 17, Arun discloses the claimed subject matter as discussed above except utilizing replicated repositories of the version control system. However,

Boothby teaches the version controlling of the database is performed utilizing replicated repositories of the version control system (i.e., a status file, table 1 in cols. 7-8 and fig. 6) in order to synchronize data in two systems. Therefore, based on Arun in view of Boothby, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Boothby to the system of Arun in order to synchronize data in two systems.

With respect to claim 24, Arun discloses the claimed subject matter as discussed above except operating the version control system within a peer-to-peer replicated network with another version control system. However, Boothby teaches operating the version control system within a peer-to-peer replicated network with another version control system (abstract, fig. 1, fig. 2, and line 16 in col. 3 thru line 5 in col. 4) in order to synchronize data in two systems. Therefore, based on Arun in view of Boothby, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Boothby to the system of Arun in order to synchronize data in two systems.

The limitations of claims 27 and 35 are rejected in the analysis of claim 24 above, and these claims are rejected on that basis.

With respect to claim 28, Arun teaches a user computer comprising: a version control system accessible by the user computer (fig. 1); means for creating within the version control system an associative array having key/value pairs (i.e., a record with a version control, wherein the record having a plurality of field/value pairs, such as row 20(1) in fig. 2, lines 32-58 in col. 1, and lines 49-67 in col. 4); and means for applying a

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version control operation to the associative array (i.e., a record-by-record basis version control, lines 1-25 in col. 5, lines 48-67 in col. 25, and fig. 2). Arun discloses a collaboration environment where each user may have a working copy (lines 10-34 in col. 14 and lines 20-54 in col. 2). Arun does not explicitly disclose a second user computer networked with the first user computer in a peer-to-peer replicated environment. However, Boothby teaches a second user computer networked with the first user computer, each of the first user computer and the second user computer capable of operating independently in a peer-to-peer replicated environment in which the first user computer and the second user computer cannot communicate for with each other for periods of time (abstract, fig. 1, fig. 2, lines 5-33 in col. 1, and line 16 in col. 3 thru line 5 in col. 4) in order to synchronize data in two systems. Therefore, based on Arun in view of Boothby, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Boothby to the system of Arun in order to synchronize data in two systems.

With respect to claim 29, Arun discloses the claimed subject matter as discussed above except merging within the version control system an edit made to a first associative array into the second version control system and vice-versa. However, Boothby teaches merging within the version control system an edit made to the first associative array into the second version control system and vice-versa (table 1 in cols. 7-8). Therefore, the limitations of claim 29 are rejected in the analysis of claim 28 above, and the claim is rejected on that basis.

With respect to claim 30, Arun discloses the claimed subject matter as discussed above except resolving a conflict that results from an edit made within one of the first version control system or the second version control system. However, Boothby teaches resolving a conflict that results from an edit made within one of the first version control system or the second version control system (table 1 in cols. 7-8). Therefore, the limitations of claim 30 are rejected in the analysis of claim 28 above, and the claim is rejected on that basis.

With respect to claim 31, Arun teaches organizing a collection of associative arrays as a database table in the version control system (fig. 2 and lines 49-67 in col. 4).

The limitations of claim 32 are rejected in the analysis of claim 31 above, and the claim is rejected on that basis.

With respect to claims 37-39, Arun teaches adding, removing, and modifying a key/value pair (fig. 4). Arun does not explicitly disclose indicating to a user when a key/value pair has been added, removed, and modified in the associative array. However, Boothby teaches detecting and indicating to a user when a key/value pair has been added, removed, and modified in the associative array (i.e., a time-and-date-of-last-modification stamp for every record, lines 20-31 in col. 2) in order to synchronize data in two systems. Therefore, based on Arun in view of Boothby, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Boothby to the system of Arun in order to synchronize data in two systems.

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With respect to claims 41-44, Arun teaches adding, removing, and modifying a key/value pair (fig. 4). Arun does not explicitly disclose creating a changeset within the version control system indicating when a key/value pair has been added, removed, and modified in the associative array. However, Boothby teaches creating a changeset within the version control system indicating when a key/value pair has been added, removed, and modified in the associative array (i.e., a time-and-date-of-last-modification stamp for every record, lines 20-31 in col. 2, and the status file, lines 33-57 in col. 5 and lines 6-29 in col. 7) in order to synchronize data in two systems. Therefore, based on Arun in view of Boothby, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Boothby to the system of Arun in order to synchronize data in two systems.

With respect to claim 46, Arun teaches storing an associative array having a collection of key/value pairs (i.e., storing a record having a plurality of field/value pairs, such as row 20(1) in fig. 2, fig. 4). Arun teaches providing a version control system on the computer (fig. 1). Arun teaches using the version control system to allow a user to put the associative array under version control (i.e., a record-by-record basis version control, lines 1-25 in col. 5, lines 48-67 in col. 25, lines 32-58 in col. 1, lines 49-67 in col. 4, and fig. 2). Arun teaches allowing the user to check out a first version of the associative array and allowing the user to check back in a second version of the associative array (i.e., the improved version control system with check-in/check-out functions, lines 13-31 in col. 26 and lines 20-54 in col. 2). Arun teaches outputting differences between the first version of the associative array and the second associative

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array, where changes in order of the keys are not considered by the version control system to be a change (i.e., providing a list of conflicted versions of a record to a user and detecting changes to data, not to schema, lines 52-57 in col. 18). Arun does not explicitly disclose storing an associative array as an associative array file. However, Boothby teaches storing an associative array as an associative array file (i.e., a file record, abstract and lines 46-57 in col. 5) in order to organize record data. Therefore, based on Arun in view of Boothby, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Boothby to the system of Arun in order to organize record data.

The limitations of claim 47 are rejected in the analysis of claim 46 above, and the claim is rejected on that basis.

Conclusion

10.. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

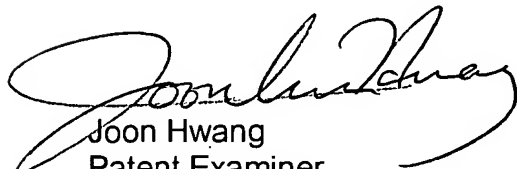
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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joon H. Hwang whose telephone number is 571-272-4036. The examiner can normally be reached on 9:30-6:00(M~F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain T. Alam can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Joon Hwang
Patent Examiner
Technology Center 2100

12/8/06